

# Memorandum

**To:** ISO Board of Governors

**From:** Keith Casey, Vice President, Market & Infrastructure Development

**Date:** March 17, 2010

**Re:** **Decision on Participation of Non-Generator Resources in ISO Ancillary Services Markets.**

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

FERC Order No. 719 directs regional transmission organizations and independent system operators to allow demand response resources to participate in ancillary services markets. This is contingent on whether the demand response resources are technically capable of providing an ancillary service within response times and other reasonable requirements adopted by the RTO or ISO. FERC Order No. 890 requires RTOs and ISOs to evaluate non-generation resources, such as demand response and storage, on a comparable basis to services provided by generation resources in meeting mandatory reliability standards, providing ancillary services and planning the expansion of the transmission grid. The California Independent System Operator Corporation commenced this initiative on participation of non-generator resources in ancillary services to comply with these FERC orders.

Management proposes modifications to existing ISO operating and technical requirements for ancillary services in order to facilitate participation by non-generator resources in the ISO ancillary services markets. If adopted, these modifications would apply to both generation and non-generation resources participating in the ancillary services markets.

We are proposing the following modifications to the ISO operating and technical requirements for existing ancillary services products:

1. Reduce the minimum rated capacity requirement to 500 kW from the existing 1 MW requirement;
2. Clarify that the measurement of the continuous energy requirement will start from the point a resource reaches its award capacity rather than the existing measurement starting after the 10 minute ramp requirement;

3. Reduce the continuous energy requirement for ancillary services from the existing 2 hour requirement to:
  - 30 minutes for spinning and non-spinning reserves
  - 60 minutes for day-ahead regulation up/down, and
  - 30 minutes for real-time regulation up/down

Management recommends that ISO Board of Governors approve the proposal for modifying the ISO operating characteristics and technical requirements for existing ancillary services products as described in this memorandum.

***Moved, that the ISO Board of Governors approves the proposal to modify existing ancillary services products, as detailed in the memorandum dated March 17, 2010; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.***

## **DISCUSSION AND ANALYSIS**

### ***Background***

The ISO commenced this initiative to comply with FERC Order Nos. 719 and 890. FERC Order No. 719, *Wholesale Competition in Regions with Organized Electric Markets*, directs regional transmission organizations and independent system operators to allow demand response resources to participate in ancillary services markets assuming the demand response resources are technically capable of providing the ancillary service within response times and other reasonable requirements adopted by the RTO or ISO. FERC Order No. 890, *Preventing Undue Discrimination and Preference in Transmission Service*, requires RTOs and ISOs to evaluate non-generation resources, such as demand response and storage, on a comparable basis to services provided by generation resources in meeting mandatory reliability standards, providing ancillary services and planning the expansion of the transmission grid.

Based on its review and discussions with stakeholders, Management proposes certain modifications to existing operating characteristics and technical requirements for ancillary services. Specifically, Management is proposing to modify the minimum rated capacity and continuous energy requirements for providing ancillary services.

### ***Proposed minimum rated capacity requirement***

The minimum rated capacity is the lowest MW level a resource must be capable of providing in order to be certified to provide ancillary services. For regulation, spinning reserve and non-spinning reserve, Management proposes to reduce the minimum rated capacity from 1MW to 500KW. This change will open the door to a broader spectrum of resource types to participate in the ISO ancillary services markets. This is particularly important for demand response

resources whose capability for providing ancillary services is often only a fraction of the total load of the facility.

### ***Proposed continuous energy requirement***

The ISO defines the continuous energy requirement for regulation, spinning reserve and non-spinning reserve as the amount of energy a resource must deliver at a sustained level for a determined interval. The current requirement for all ancillary services is two hours of continuous energy.

The current requirement is a historical legacy given the operational characteristics of traditional generators that comprised the bulk of supply resources in the ISO market. As a result, the continuous energy requirement was technology-accommodating versus technology-agnostic. Given technological advancements, new resources such as flywheels, batteries and demand response have the potential to provide ancillary services, but many of these technologies cannot meet the current 2-hour continuous energy requirement. Therefore, the ISO reevaluated the continuous energy requirements based upon the how the various ancillary services are used to meet operational needs and set the new proposed requirements accordingly. The new proposed requirements significantly lower continuous energy limits, which should provide increased opportunities for non-generation resources to provide ancillary services while still maintaining the reliability standards required from these services.

Management proposes to reduce the continuous energy requirement for spinning and non-spinning reserves from 2 hours to 30 minutes. This 30 minute time period is sufficient as it meets ISO requirement to recover from a contingency within 15 minutes and allows another 15 minutes for the real-time energy market to return to a normal state.

We also propose to reduce the continuous energy requirement for regulation up and regulation down from 2 hours to 60 minutes for the day-ahead market and to 30 minutes for the real-time market. The regulation continuous energy requirements align with the awarded interval's time duration and allow the regulation award to substitute as spinning reserves if it is economic to do so. In the day-ahead market, the ISO procures 100% of the forecasted regulation requirements for each hour. In the real-time market, the ISO procures incremental regulation requirements in 15 minute intervals. However, in order to allow bids for regulation services to also be considered for spinning reserves, the continuous energy requirement for regulation capacity aligns with the longer run time requirement of 30 minutes for spinning reserves.

### ***Regulation energy management (deferred item)***

With the above modifications, limited energy storage resources such as flywheels and batteries will now be able to participate in the day-ahead and real-time regulation market. However, the amount of day-ahead capacity provided by these resources will be limited by the amount of storage capacity versus total MW quantity that can be dispatched in any 4 second automated generation control interval. The ISO initially proposed a regulation energy management scheme which would manage limited energy storage resources so they can provide regulation based on fifteen minutes of energy production. Management decided to exclude this provision from the proposal at this stage but is committed to address regulation energy management in the larger context of the ancillary services product review initiative

which is scheduled to begin in the second quarter of this year. Regulation energy management, if approved through the upcoming stakeholder process, will address limited energy storage resources concerns regarding the regulation capacity which may be awarded in the day-ahead market.

## **POSITIONS OF THE PARTIES**

Market participants have been generally supportive of the proposed changes to ISO operating requirements to allow participation by all resource types. However, some stakeholders believe that the proposed modifications do not go far enough to fully meet the intentions of FERC Orders 719 and 890. Specifically, these stakeholders are concerned that limited storage resources are not fully able to participate in the day-ahead market now that regulation energy management was removed from the proposal. Other stakeholders attest that regulation energy management is a new product offering that warrants further discussion and that it is out of scope for this stakeholder initiative. Stakeholder comments are summarized in a *Stakeholder Matrix* which is Attachment A to this memorandum.

## **FUTURE ACTIVITIES**

### ***Ancillary services market review***

In late spring, the ISO will commence the ancillary services market product review initiative. The initiative will comprehensively review the ISO ancillary services products and market based upon the findings of the renewable integration technical studies. The 20% renewable integration study is scheduled to be completed in late March 2010. The 33% renewable integration study is scheduled to be completed in mid-late spring. The scope of the ancillary services market product review initiative is to design and implement changes to products and markets where needed to enable the ISO to meet reliability requirements outlined in the two studies above.

As part of this initiative, the ISO will continue stakeholder discussions regarding regulation energy management to allow limited energy storage devices such as flywheels and batteries to provide day-ahead regulation at their full capacity. In addition, the development of new products such as frequency response or fast regulation will be analyzed to determine if emerging reliability requirements necessitate the development of these new products.

### ***Storage pilots***

In February 2010, the ISO commenced the Sano Regulation Center Pilot Project. SANO is a 2 MW – 500 KW-Hr Lithium Ion battery energy storage facility installed at the Huntington Beach Generating Plant and it is interconnected to the Southern California Edison system. The first phase seeks (a) to demonstrate the capability of SANO to provide the ISO with regulation or a “regulation-like” service consistent with reliability criteria and then developed interim certification procedures and (b) to provide the ISO and AES with experience and data for understanding the processes and effects, both financial and operational, of allowing a limited energy storage device to provide ancillary services through the ISO market.

The ISO will evaluate additional storage pilots to increase operational experience and market participation of limited energy storage resources as the ISO continues to review the ancillary services requirements based upon the 20% and 33% renewable integration studies. Information gained from storage pilots will help to shape future policy designed to increase the participation of these resources in the ISO market.

#### **MANAGEMENT RECOMMENDATION**

Management recommends that the Board approve the proposal to modify existing ancillary services products to allow participation of a deeper pool of resources as described in this memorandum.